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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/989,587	11/20/2001	Ook Kim	594728105US	1523

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EXAMINER

CHANG, JOSEPH

ART UNIT PAPER NUMBER

2817

DATE MAILED: 03/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/989,587

Applicant(s)

KIM ET AL.

Examiner

Joseph Chang

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Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-8 is/are allowed.
- 6) ☒ Claim(s) 9, 11-16, 18-20, 22-27, 29 and 31-36 is/are rejected.
- 7) ☒ Claim(s) 10, 17, 21, 28, 30 and 37 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claims 9, 20, 29 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Huang US6456167.

Huang discloses in fig.8 a voltage-control oscillator (VCO) comprising: a plurality of cascaded VCO cells (left and right cells), each VCO cell having at least one output (818), a first pair of coupled transistors (812, 814), a bias transistor (813) coupled to the first pair of coupled transistors, at least one voltage-controlled capacitor (815) coupled to a control voltage (VCC) and to the first pair of coupled transistors (812, 814), and a second pair of coupled transistors (left side of pair), the second pair of coupled transistors coupled to the first pair of coupled transistors (812 814). Regarding claims 20 and 29, it should be noted that they merely recite an intended use by reciting "A wireless communications device" or "A high-speed serial data link semiconductor chip". Therefore, these recitations have been given no patentable weight in the application of the above rejection.

Claims 18 and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Liu US 6414557.

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Liu discloses in figures 1-5 a VCO having a plurality of VCO cells ("The ring oscillator circuit is composed of a plurality of differential delay circuit" in Abstract, see figures 1-4), each VCO cell (fig. 5) having a plurality of output voltage waveforms (V_{out} +/-) comprising combining means (CMFB 540) for combining each of the output voltage waveforms to produce a combined voltage (it is inherent when signal lines are connected together), deriving means (CMFB 540) for deriving a common mode feedback voltage from the combined voltage and a reference voltage (V_{ref}), and transmitting means (V_{cmfn} 527) for transmitting the common mode feedback (CMFB) voltage to each of the plurality of VCO cells (520). Method claim 18 is the same in scope as apparatus claim 19 and therefore, the claim is rejected similarly.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 11-16, 22-27 and 31-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huang.

As noted above, Huang disclosed a VCO in figure 8 as recited in the claims. Huang discloses a pair of variable capacitors to change the equivalent value of LC tank and to change the frequency of the output signals except for the specific types of capacitors (MOS or p-n junction voltage controlled capacitors). Although the MOS or p-n junction type is not disclosed in Huang, It would have been obvious to one of ordinary skill in the art at the time the invention was made to use MOS capacitors for the purpose of obtaining or producing variable capacitance in the LC tank circuit for variable oscillation frequency since it was known in the art that any p-n junction including MOS when voltage is applied the value of capacitance changes so that one of ordinary skill in the art would want to use such a capacitor to produce variable oscillation frequency.

Regarding claims 13-16, such circuits (a charge pump circuit, a loop filter circuit, a phase detector circuit) coupled with a VCO in a phase lock loop (PLL) are well known in the art (Figure 8 in Yabe) and therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use such circuits with the VCO of Huang in a PLL circuit as intended in a communication system as suggested by Huang.

Allowable Subject Matter

Claims 1-8 are allowed.

Claims 10, 17, 21, 28, 30 and 37 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Huang discloses in fig.8 a voltage-control oscillator (VCO) comprising a plurality of cascaded VCO cells. However, one of ordinary skill in the art would not have been motivated to have a common mode feedback circuit coupled to the VCO cells, as set forth in the claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yabe discloses in figure 8 a PLL using a VCO.

Yoshizawa et al. discloses a VCO with level converting.

Horikawa et al. discloses a VCO with a Cm-C filter as relates to CMFB.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Chang whose telephone number is (703) 308-4800. The examiner can normally be reached on Mon-Thur 0630-1700.

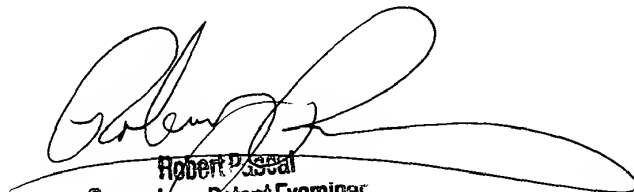
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (703) 308-4909. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7724

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for regular communications and (703) 308-7722 for After Final communications. In addition, the official TC2800 RightFAX numbers are Before-Final (703-872-9318) and After-Final Fax numbers (703-872-9319). These RightFAX numbers provide the fax sender with an auto-reply fax verifying receipt of their fax by the USPTO.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

jc
February 26, 2003



Robert P. Pascal
Supervisory Patent Examiner
Technology Center 2800